

REMARKS/ARGUMENTS

Entry of this amendment and reconsideration of the present application, as amended, are respectfully requested.

Claims 1-24 are pending in this application. Claims 1, 2, 6 and 22 are amended and the changes to the claims do not relate to patentability.

Claim Rejections-35 U.S.C. §112

Claims 6 and 22 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to point out and distinctly claim the subject matter which the applicant regards as the invention.

The Examiner's rejection is respectfully traversed on the grounds that possible occupant characteristics that can be determined using the sensor system and sensing method in accordance with the invention include occupant location, size and type, as pointed out by the Examiner, as well as biometric characteristics of an individual. Such biometric characteristics include a "voice print, a hand print, a finger print, or iris scan and facial feature" as recited in claims 6 and 22.

For example, recognition of facial features based on absorption of an energy signal is now possible, e.g., by deriving an image from the energy signals received by an optical receiver and processing the received energy signals (for example into an image although such an image does not necessarily have to be generated), and is discussed in the specification at page 33, lines 14-28 with reference to Fig. 18.

In view of the foregoing, it is respectfully submitted that the Examiner's rejection of claims 6 and 22 under 35 U.S.C. §112, second paragraph, as being indefinite has been overcome and should be removed.

Claim Rejections-35 U.S.C. §102

Claims 1-24 were rejected under 35 U.S.C. §102(b) as being anticipated by Cooper et al (U.S. Pat. No. 6,199,902).

The Examiner's rejection is respectfully traversed on the grounds that Cooper et al. should not be available as prior art against the patentability of claims 1-24.

Specifically, it is respectfully submitted that the subject matter of claims 1-24 is supported in a parent application, U.S. patent application Ser. No. 09/047,703 (the '703 application) filed March 25, 1998, which predates the effective filing date of Cooper et al. (February 12, 1999) so that Cooper et al. should not be available as prior art against the patentability of these claims.

Priority of the '703 application has been properly claimed under 35 U.S.C. §120, through three intervening applications, namely U.S. patent application Ser. No. 09/437,535, U.S. patent application Ser. No. 09/563,556, and U.S. patent application Ser. No. 09/838,920, there is continuity of disclosure

through these intervening applications, and there is at least one common inventor named in the instant application and the '703 application, i.e., David S. Breed.

As to support for the claimed subject matter in the '703 application, the rejected claims are set forth below in chart form with an indication of the disclosure thereof in the '703 application (reference being made to U.S. Patent No. 6,039,139 which issued from the '703 application).

<p>1. A sensor system for sensing at least one occupant characteristic of a vehicle occupant, comprising:</p> <p>means for transmitting a energy signal toward an occupant location within a vehicle;</p> <p>means for detecting whether absorption of the energy signal by a vehicle occupant occurs and for providing an absorption signal indicative thereof; and</p> <p>means for processing the absorption signal to determine at least one occupant characteristic.</p>	<p>In Fig. 1, means for transmitting an energy signal toward occupant location within a vehicle is transducer 132 (col. 11, lines 13-14).</p> <p>The means for detecting absorption and providing a signal indicative thereof are transducers 131 and 133 (col. 11, lines 16-17). Inherently, some of the ultrasonic waves are absorbed by the occupant.</p> <p>The means for processing is a processor 101 which determine occupant position based on the reflected ultrasonic waves (col. 11, lines 27-29).</p>
<p>2. The system of claim 1, wherein said means for transmitting includes means for transmitting an electromagnetic energy signal toward the occupant location, and said means for detecting includes means for detecting absorption of the energy signal.</p>	<p>The embodiment of Fig. 18 discusses transducers 231A, 232A, 233A which are sensitive to infrared radiation and transmitter and/or receive such infrared radiation (Col. 22, lines 2-4).</p>
<p>3. The system of claim 1, wherein said means for processing includes means for determining if a vehicle occupant is present as the occupant characteristic.</p>	<p>Processor 101 is capable of determining the presence of an occupant as discussed with reference to Fig. 8 and the application of the neural network (col. 16, lines 7-13).</p>

4. The system of claim 1, wherein said means for processing includes means for determining a size of a vehicle occupant as the occupant characteristic	Processor 101 is capable of determining the size of an occupant (col. 5, lines 38-43).
5. The system of claim 1, wherein said means for processing includes means for determining location of a vehicle occupant with respect to the vehicle as the occupant characteristic.	Processor 101 is capable of determining the location of an occupant (col. 11, lines 24-32).
6. The system of claim 1, wherein said means for processing includes means for determining at least one biometric feature of the vehicle occupant as the occupant characteristic, said determining means being arranged to receive energy signals modified by or reflected from the occupant and process the received energy signals, the at least one biometric feature being selected from a group consisting of a voice print, a hand print, a finger print, an iris scan and a facial feature.	Processor 101 is capable of determining biometric features by first receiving energy signals reflected from or modified by the occupant and processing them (col. 22, lines 10-17).
7. The system of claim 1, wherein said means for processing includes means for determining a type of a vehicle occupant as the occupant characteristic.	Processor 101 is capable of determining the type of an occupant (col. 5, lines 38-43). The use of the trained neural network enables the system to provide an indication of whether the occupant is an adult, a child seat, boxes, bags of groceries, etc.
8. The system of claim 7, wherein said means for processing includes means for determining whether the type of a vehicle occupant is a child in a child seat.	Processor 101 is capable of determining whether type of occupant is a child in child seat (col. 11, line 66 to col. 12, line 2)

9. The system of claim 1, wherein said means for transmitting and said means for detecting are arranged on a common side of the vehicle occupant location.	Fig. 1 shows the transducers 131, 132, 133 arranged on a common side of the vehicle.
10. The system of claim 1, wherein said means for transmitting is a first means for transmitting and said energy signal is a first energy signal, said system including a plurality of means for transmitting, each for transmitting an energy signal toward the occupant location, said means for detecting includes means for detecting whether absorption of each energy signal by a vehicle occupant occurs and for providing signals indicative thereof.	A plurality of transducers 131, 132, 133 are provided with each being capable of transmitting and/or receiving energy signals.
11. The system of claim 10, wherein one of said plurality of means for transmitting is mounted within a headliner of the vehicle and another of said plurality of means for transmitting is mounted within an instrument panel of the vehicle.	Transducers 131, 132, 133 are mountable in the headliner as well as other mounting locations (col. 12, lines 49-57).
12. The system of claim 11, wherein one of said plurality of means for detecting is mounted within a door of the vehicle.	Figs. 9, 16 and 16A show transducers mounted within a door of the vehicle.
13. The system of claim 1, wherein said means for transmitting is mounted within a portion of the vehicle other than a headliner, and said means for detecting is mounted with a portion of the vehicle other than a seat of the vehicle.	Transducers 131, 132, 133 are mountable in the headliner as well as other mounting locations (col. 12, lines 49-57).
14. The system of claim 1, wherein said means for processing includes means for providing a signal indicative of the at least one occupant characteristic for use within an occupant protection system.	Processor 101 provides a signal indicative of the at least one occupant characteristic (col. 8, lines 44-53).

<p>15. A method for sensing at least one occupant characteristic of a vehicle occupant, comprising the steps of:</p> <p>transmitting an energy signal toward an occupant location within a vehicle;</p> <p>detecting whether absorption of the energy signal by a vehicle occupant occurs;</p> <p>providing an absorption signal indicative of the occurrence of energy absorption; and</p> <p>processing the absorption signal to determine at least one occupant characteristic.</p>	<p>Transmission of an energy signal toward occupant location within a vehicle can be achieved by transducer 132 (col. 11, lines 13-14).</p> <p>Detection of absorption of the energy signal and providing a signal indicative thereof can be achieved by transducers 131 and 133 (col. 11, lines 16-17). Inherently, some of the ultrasonic waves are absorbed by the occupant.</p> <p>A processor 101 processes the absorption signal to determine, e.g., occupant position, based on the reflected ultrasonic waves (col. 11, lines 27-29).</p>
<p>16. The method of claim 15, wherein said step of transmitting includes transmitting an electromagnetic energy signal toward the occupant location, and said step of detecting includes detecting absorption of the energy signal.</p>	<p>The embodiment of Fig. 18 discusses transducers 231A, 232A, 233A which are sensitive to infrared radiation and transmitter and/or receive such infrared radiation (Col. 22, lines 2-4).</p>
<p>17. The method of claim 15, wherein said step of processing includes determining if a vehicle occupant is present as the occupant characteristic.</p>	<p>Processor 101 is capable of determining the presence of an occupant as discussed with reference to Fig. 8 and the application of the neural network (col. 16, lines 7-13).</p>
<p>18. The method of claim 15, wherein said step of processing includes determining a size of a vehicle occupant as the occupant characteristic.</p>	<p>Processor 101 is capable of determining the size of an occupant (col. 5, lines 38-43).</p>
<p>19. The method of claim 15, wherein said step of processing includes determining a location of a vehicle occupant with respect to the vehicle as the occupant characteristic.</p>	<p>Processor 101 is capable of determining the location of an occupant (col. 11, lines 24-32).</p>

<p>20. The method of claim 15, wherein said step of processing includes determining a type of a vehicle occupant as the occupant characteristic.</p>	<p>Processor 101 is capable of determining the type of an occupant (col. 5, lines 38-43). The use of the trained neural network enables the system to provide an indication of whether the occupant is an adult, a child seat, boxes, bags of groceries, etc.</p>
<p>21. The method of claim 20, wherein said step of processing includes determining whether the type of a vehicle occupant is a child in a child seat.</p>	<p>Processor 101 is capable of determining whether type of occupant is a child in child seat (col. 11, line 66 to col. 12, line 2)</p>
<p>22. The method of claim 15, wherein said step of processing includes determining at least one biometric feature of the vehicle occupant as the occupant characteristic by receiving energy signals modified by or reflected from the occupant and processing the received energy signals, the at least one biometric feature being selected from a group consisting of a voice print, a hand print, a finger print, an iris scan and a facial feature.</p>	<p>Step of processing includes step of determining at least one biometric feature from the group of a voice print, hand print, finger print, iris scan, and facial feature (col. 22, lines 10-17).</p>
<p>23. A sensor system for sensing at least one occupant characteristic of a vehicle occupant, comprising:</p> <p>means for transmitting an energy signal toward an occupant location within a vehicle;</p> <p>means for detecting whether absorption of the energy signal by a vehicle occupant occurs;</p> <p>means for providing an absorption signal indicative of the occurrence of energy absorption;</p> <p>and</p> <p>means for processing the absorption signal to determine at least one occupant characteristic.</p>	<p>See Claim 1 above.</p>

24. A method for sensing at least one occupant characteristic of a vehicle occupant, comprising the steps of: transmitting an energy signal toward an occupant location within a vehicle; detecting whether absorption of the energy signal by a vehicle occupant occurs and providing an absorption signal indicative thereof; and processing the absorption signal to determine at least one occupant characteristic.	See Claim 15 above.
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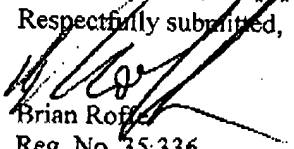
In view of the foregoing chart, it is respectfully submitted that all of the subject matter of the rejected claims is sufficiently disclosed in the parent '703 application to be entitled to the benefit of the filing date thereof. The subject matter is also present in intervening U.S. patent application Ser. No. 09/437,535, in intervening U.S. patent application Ser. No. 09/563,556, and in intervening U.S. patent application Ser. No. 09/838,920.

Since the subject matter of the pending claims is entitled to the benefit of a filing date preceding that of Cooper, Cooper should not be available as prior art and accordingly, the Examiner's rejection of claims 1-24 as being anticipated by Cooper has been overcome and should be removed.

If the Examiner should determine that minor changes to the claims to obviate informalities are necessary to place the application in condition for allowance, the Examiner is respectfully requested to contact the undersigned to discuss the same.

An early and favorable action on the merits upon entry and consideration of this amendment is earnestly solicited.

FOR THE APPLICANT
Respectfully submitted,


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